

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (canceled)

Claim 2 (canceled)

Claim 3 (previously presented): A frequency-selective circuit comprising:
an active device providing an input port and an output port, the active device having a
bandwidth defined by a cutoff frequency, wherein the active device comprises an
operational transconductance amplifier (OTA);
a reactive component coupled to the output port; and
a compensation resistance coupled to the reactive component, wherein the compensation
resistance is effective to compensate for a bandwidth limitation of the active device, the
compensation resistance having a resistance value that is inversely proportional to a reactance
value of the reactive component, wherein the compensation resistance comprises a compensation
resistor and wherein the compensation resistor has a resistance value that is inversely
proportional to a tangent of a phase-shift at a predetermined compensation frequency.

Claim 4 (canceled)

Claim 5 (original): The frequency-selective circuit defined in Claim 3, wherein the
predetermined compensation frequency is a frequency at which a Q_{\max} of the frequency-selective
circuit appears.

Claim 6 (canceled)

Claim 7 (previously presented): The frequency-selective circuit defined in Claim 3,
wherein the reactive component comprises a capacitor.

Claim 8 (canceled)

Claim 9 (previously presented): The frequency-selective circuit defined in Claim 7, wherein the compensation resistor has a resistance value that is inversely proportional to a capacitance value of the capacitor.

Claim 10 (previously presented): The frequency-selective circuit defined in Claim 7, wherein the compensation resistance comprises a resistor and, at a predetermined compensation frequency, the resistor has a resistance value that is proportional to a tangent of a phase-shift of the OTA transconductance at the predetermined compensation frequency.

Claim 11 (previously presented): A frequency-selective circuit comprising:
an operational transconductance amplifier (OTA) having a bandwidth-limited transconductance that is defined by a cutoff frequency;
a capacitor coupled to an output of the OTA so as to reflect an inductor at an input of the OTA; and
a compensation resistor coupled to the capacitor and effective to compensate for a bandwidth limitation of the transconductance.

Claim 12 (previously presented): The frequency-selective circuit defined in Claim 11, wherein, at a predetermined compensation frequency, the compensation resistor has a resistance value that is inversely proportional to a tangent of a phase-shift at the predetermined compensation frequency and inversely proportional to a capacitance value of the capacitor.

Claim 13 (original): The frequency-selective circuit defined in Claim 12, wherein the frequency-selective circuit exhibits a Q_{\max} and a Q_{\min} , and wherein the predetermined compensation frequency is selected to correspond to Q_{\max} .

Claim 14 (previously presented): A method of compensating for a bandwidth limitation of an active frequency-selective circuit, the method comprising:

determining a compensation frequency at which a Q_{\max} of the active frequency-selective circuit occurs;

determining a value of an effective negative resistance that results, at least in part, from a bandwidth limitation of an active device in the active frequency-selective circuit; and

providing in the active frequency-selective circuit a compensation resistor that, at the compensation frequency, is effective to compensate the negative resistance.

Claim 15 (canceled)

Claim 16 (previously presented): The method defined in Claim 14, wherein the active frequency-selective circuit comprises:

the active device providing an input port and an output port, the active device having a bandwidth defined by a cutoff frequency; and

a reactive device coupled to the output port.

Claim 17 (original): The method defined in Claim 16, further comprising:
coupling the compensation resistor to the reactive device.

Claim 18 (original): The method defined in Claim 17, wherein the compensation resistor is selected to have a resistance value, at the compensation frequency, that is inversely proportional to the tangent of a phase-shift at the compensation frequency.

Claim 19 (original): The method defined in Claim 16, wherein the active device comprises an operational transconductance amplifier (OTA) having a transconductance that is bandwidth limited to a frequency approximate to the cutoff frequency.

Claim 20 (previously presented): The method defined in Claim 19, further comprising:

coupling the compensation resistor to the reactive device.

Claim 21 (original): A method as defined in Claim 20, wherein the compensation resistor is selected to have a resistance value, at the compensation frequency, that is inversely proportional to a phase-shift at the compensation frequency.

Claim 22 (original): The method defined in Claim 21, wherein the active frequency-selective circuit exhibits a Q_{\max} and a Q_{\min} , the method further comprising:
effecting compensation of the negative resistance at a frequency corresponding to Q_{\max} .

Claim 23 (original): A Gm-C filter circuit comprising:
an input node;
an output node;
an intermediate node;
a return node;
a first compensated reactive branch coupled between the input node and the intermediate node; and
a second compensated reactive branch coupled between the output node and the intermediate node.

Claim 24 (previously presented): The Gm-C filter defined in Claim 23, wherein the first compensated reactive branch comprises:
a first operational transconductance amplifier (OTA) device, the first OTA device having an input port and having a bandwidth defined by a first cutoff frequency;
a first reactive device coupled to an output port of the first OTA device; and
a first compensation resistance coupled to the first reactive device; and wherein the second compensated reactive branch comprises:
a second OTA device, the second OTA device having an input port and having a bandwidth defined by a second cutoff frequency;
a second reactive device coupled to an output port of the second OTA device; and
a second compensation resistance coupled to the second reactive device.

Claim 25 (previously presented): The Gm-C filter defined in Claim 24, wherein the first cutoff frequency is substantially equal to the second cutoff frequency.

Claim 26 (previously presented): The Gm-C filter defined in Claim 24, wherein the first compensation resistance is effective to compensate for a bandwidth limitation of the first OTA device and the second compensation resistance is effective to compensate for a bandwidth limitation of the second OTA device.

Claim 27 (currently amended): The Gm-C filter defined in Claim 24, wherein the first reactive device comprises a first capacitor and ~~[[a]]~~ the second reactive device comprises a second capacitor.

Claim 28 (previously presented): The Gm-C filter defined in Claim 27, wherein the first compensation resistance comprises a first compensation resistor having a first resistance value that is inversely proportional to the tangent of a phase-shift at a first compensation frequency and wherein the second compensation resistance comprises a second compensation resistor having a second resistance value that is inversely proportional to the tangent of a phase-shift at a second compensation frequency.

Claim 29 (previously presented): The Gm-C filter defined in Claim 28, wherein, at the compensation frequency, the first resistance value is inversely proportional to a capacitance value of the first capacitor and the second resistance value is inversely proportional to a capacitance value of the second capacitor.

Claim 30 (previously presented): The Gm-C filter defined in Claim 28, wherein the Gm-C filter circuit exhibits at least a Q_{\max} and a Q_{\min} and wherein the first compensation frequency is selected to correspond to the Q_{\max} .

Claim 31 (original): The Gm-C filter defined in Claim 29, wherein the first OTA device and the second OTA device each comprise:

a first OTA having differential inputs and differential outputs: and

a second OTA having differential inputs and differential outputs, and wherein the differential outputs of the first OTA are coupled to the differential inputs of the second OTA; and the differential outputs of the second OTA are coupled to the differential inputs of the first OTA.

Claim 32 (previously presented): A system comprising:
a low-noise amplifier (LNA) to receive a modulated carrier signal;
a mixer coupled to the LNA;
a demodulator coupled to the mixer; and
a bandwidth-compensated filter coupled to the LNA, the bandwidth-compensated filter comprising:
an active device providing an input port and an output port, the active device having a bandwidth defined by a cutoff frequency;
a reactive component coupled to the output port; and
a compensation resistance coupled to the reactive component, wherein the compensation resistance is effective to compensate for a bandwidth limitation of the active device, the reactive component comprising a capacitance and wherein the compensation resistance comprises a compensation resistor having a resistance value that is inversely proportional to a product of a capacitance value of the capacitance and a tangent of a phase-shift at a predetermined compensation frequency.

Claim 33 (canceled)

Claim 34 (previously presented): The system defined in Claim 32, wherein the active device comprises an operational transconductance amplifier (OTA) having a bandwidth-limited transconductance that is defined by the cutoff frequency.

Claim 35 (previously presented): The system defined in Claim 34, wherein the phase-shift is the phase-shift of the transconductance at the predetermined compensation frequency.

Claim 36 (previously presented): The system defined in Claim 35, wherein the predetermined compensation frequency is the frequency at which a maximum Q of the bandwidth-compensated filter occurs.

Claim 37 (previously presented): The frequency-selective circuit defined in Claim 11, further comprising a second OTA coupled to the OTA, and a second capacitor coupled to an output of the second OTA so as to reflect an inductor at an input of the second OTA.

Claim 38 (previously presented): The frequency-selective circuit defined in Claim 37, further comprising a second compensation resistor coupled to the second capacitor to compensate for a negative reflected resistance of the second OTA.